

WHAT IS CLAIMED IS:

1. A thermal fixing device comprising:

a fixing member configured to be in contact with a fixation medium;

5 a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member; and

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
10 fixation medium to the fixing member,

wherein the fixing member and the first pressing member apply to a developer on the fixation medium to be pressed by the first pressing member a temperature not lower than a glass transition point of the developer.

15 2. The thermal fixing device as claimed in claim 1, wherein the fixing member and the first pressing member apply to the developer on the fixation medium to be pressed by the first pressing member a temperature not lower than a softening point of the developer.

20 3. The thermal fixing device as claimed in claim 1, wherein the fixing member and the first pressing member apply to an interface between the fixation medium and the developer a temperature not lower than a softening point of the developer.

4. The thermal fixing device as claimed in claim 1, wherein  
25 the fixing member and the first pressing member apply the

temperature to the developer at a position most downstream in the conveyance direction in a contact portion between the fixing member and the first pressing member.

5        5.        The thermal fixing device as claimed in claim 2, wherein the fixing member and the first pressing member apply the temperature to the developer at a position most downstream in the conveyance direction in a contact portion between the fixing member and the first pressing member.

10       6.        The thermal fixing device as claimed in claim 3, wherein the fixing member and the first pressing member apply the temperature to the interface at a position most downstream in the conveyance direction in a contact portion between the fixing member and the first pressing member.

15       7.        The thermal fixing device as claimed in claim 1 further comprising an endless belt stretched between the first pressing member and the second pressing member.

8.        A thermal fixing device comprising:

          a fixing member configured to be in contact with a fixation medium;

20            a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member; and

          a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
25    fixation medium to the fixing member,

wherein a pressing force per unit area of the first pressing member is configured to be equal to or larger than a pressing force per unit area of the second pressing member.

9. The thermal fixing device as claimed in claim 8, wherein  
5 the first pressing member comprises a first pressing roller, and the second pressing member comprises a second pressing roller.

10. The thermal fixing device as claimed in claim 9, wherein a pressing force per unit area of the first pressing roller is configured to be larger than a pressing force per unit area of  
10 the second pressing roller.

11. The thermal fixing device as claimed in claim 9, wherein a diameter of the first pressing roller is configured to be larger than a diameter of the second pressing roller.

12. The thermal fixing device as claimed in claim 8, wherein  
15 a hardness of a portion of the first pressing member where contacts with the fixation medium is configured to be higher than a hardness of a portion of the second pressing member where contacts with the fixation medium.

13. The thermal fixing device as claimed in claim 8 further  
20 comprising an endless belt stretched between the first pressing member and the second pressing member.

14. A thermal fixing device comprising:

a fixing member configured to be in contact with a fixation medium;

25 a first pressing member disposed to face the fixing member

and presses the fixation medium to the fixing member; and

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
5 fixation medium to the fixing member,

wherein the fixing member and the first pressing member are provided not to cause a cold offset immediately after the fixation medium passes through between the fixing member and the first pressing member.

10 15. The thermal fixing device as claimed in claim 14, wherein the fixing member, the first pressing member and the second pressing member are provided not to cause a hot offset immediately after the fixation medium passes through between the fixing member and the second pressing member.

15 16. The thermal fixing device as claimed in claim 14 further comprising an endless belt stretched between the first pressing member and the second pressing member.

17. A thermal fixing device comprising:

a fixing roller configured to be in contact with a fixation  
20 medium;

a heating unit disposed inside the fixing roller and generates heat for heating the fixing roller by applied electricity;

a first pressing member disposed to face the fixing roller  
25 and presses the fixation medium to the fixing member;

a second pressing member disposed to face the fixing roller at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the fixation medium to the fixing roller; and

5 a reflection member disposed inside the fixing roller and reflects heat radiated from the heating unit toward the fixing roller within a range between a position upstream in a rotation direction of the fixing roller with respect to a contact portion between the fixing roller and the first pressing member, and a  
10 position most downstream in the rotation direction of the fixing roller in a contact portion between the fixing roller and the second pressing member.

18. The thermal fixing device as claimed in claim 17 further comprising an endless belt stretched between the first pressing  
15 member and the second pressing member.

19. A thermal fixing device comprising:

a fixing member configured to be in contact with a fixation medium;

a heating unit disposed inside the fixing roller and  
20 generates heat for heating the fixing roller by applied electricity;

a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member;

a second pressing member disposed to face the fixing member  
25 at a position downstream in a conveyance direction of the fixation

medium with respect to the first pressing member and presses the fixation medium to the fixing member;

a reflection member disposed inside the fixing member and reflects heat radiated from the heating unit toward the fixing member within a specified range;

a first temperature detector disposed inside the fixing member and outside a the specified range of the fixing member to which the heat reflected by the reflection member is irradiated, and detects a temperature of the fixing member where the first temperature is disposed; and

a second temperature detector disposed outside the fixing member and within the specified range of the fixing member to which the heat reflected by the reflection member is irradiated.

20. The thermal fixing device as claimed in claim 19 further comprising an endless belt stretched between the first pressing member and the second pressing member.

21. An image forming apparatus comprising:

a sheet feeding section configured to feed a sheet as a fixation medium; and

an image forming section having a thermal fixing device and configured to form an image on the sheet fed by the sheet feeding section,

wherein the thermal fixing device comprises:

a fixing member configured to be in contact with a fixation medium;

a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member; and

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
5 fixation medium to the fixing member,

wherein the fixing member and the first pressing member apply to a developer on the fixation medium to be pressed by the first pressing member a temperature not lower than a glass  
10 transition point of the developer.

22. An image forming apparatus comprising:

a sheet feeding section configured to feed a sheet as a fixation medium; and

an image forming section having a thermal fixing device  
15 and configured to form an image on the sheet fed by the sheet feeding section,

wherein the thermal fixing device comprises:

a fixing member configured to be in contact with a fixation medium;

20 a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member; and

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
25 fixation medium to the fixing member,

wherein a pressing force per unit area of the first pressing member is configured to be equal to or larger than a pressing force per unit area of the second pressing member.

23. An image forming apparatus comprising:

5 a sheet feeding section configured to feed a sheet as a fixation medium; and

an image forming section having a thermal fixing device and configured to form an image on the sheet fed by the sheet feeding section,

10 wherein the thermal fixing device comprises:

a fixing member configured to be in contact with a fixation medium;

a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member; and

15 a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the fixation medium to the fixing member,

20 wherein the fixing member and the first pressing member are provided not to cause a cold offset immediately after the fixation medium passes through between the fixing member and the first pressing member.

24. An image forming apparatus comprising:

25 a sheet feeding section configured to feed a sheet as a fixation medium; and



an image forming section having a thermal fixing device and configured to form an image on the sheet fed by the sheet feeding section,

wherein the thermal fixing device comprises:

5 a fixing member configured to be in contact with a fixation medium;

a heating unit disposed inside the fixing roller and generates heat for heating the fixing roller by applied electricity;

10 a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member;

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation medium with respect to the first pressing member and presses the  
15 fixation medium to the fixing member; and

a reflection member disposed inside the fixing roller and reflects heat radiated from the heating unit toward the fixing roller within a range between a position upstream in a rotation direction of the fixing roller with respect to a contact portion  
20 between the fixing roller and the first pressing member, and a position most downstream in the rotation direction of the fixing roller in a contact portion between the fixing roller and the second pressing member.

25. An image forming apparatus comprising:

25 a sheet feeding section configured to feed a sheet as a

fixation medium; and

an image forming section having a thermal fixing device and configured to form an image on the sheet fed by the sheet feeding section,

5 wherein the thermal fixing device comprises:

a fixing member configured to be in contact with a fixation medium;

a heating unit disposed inside the fixing roller and generates heat for heating the fixing roller by applied  
10 electricity;

a first pressing member disposed to face the fixing member and presses the fixation medium to the fixing member;

a second pressing member disposed to face the fixing member at a position downstream in a conveyance direction of the fixation  
15 medium with respect to the first pressing member and presses the fixation medium to the fixing member;

a reflection member disposed inside the fixing member and reflects heat radiated from the heating unit toward the fixing member within a specified range;

20 a first temperature detector disposed inside the fixing member and outside a the specified range of the fixing member to which the heat reflected by the reflection member is irradiated, and detects a temperature of the fixing member where the first temperature is disposed; and

25 a second temperature detector disposed outside the fixing

member and within the specified range of the fixing member to which the heat reflected by the reflection member is irradiated.